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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,037	12/11/2003	Giora Biran	FIS920030289US1	8778

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HOFFMAN WARNICK LLC  
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ALBANY, NY 12207

EXAMINER
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GOODCHILD, WILLIAM J

ART UNIT	PAPER NUMBER
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2145

NOTIFICATION DATE	DELIVERY MODE
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08/05/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOCommunications@hwdpatents.com  
efiplaw@us.ibm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/734,037	<b>Applicant(s)</b> BIRAN ET AL.	
	<b>Examiner</b> WILLIAM J. GOODCHILD	<b>Art Unit</b> 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 9 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Elzur, (US Publication No. 2003/0172342).

Regarding claims 1, 9 and 16, Elzur discloses placing each out-of-order RDMA message [paragraph 38] to a reassembly buffer [paragraph 42, lines 17-31, Intermediate or temporary buffer], wherein each in-order RDMA message bypasses the reassembly buffer and is placed in a destination buffer [paragraph 38 and 42]; storing information regarding each out-of-order RDMA message on a per TCP hole basis, wherein a TCP hole is a vacancy created in a TCP stream as a result of an out-of-order TCP segment [paragraph 42, lines 17-31]; and delivering the plurality of RDMA messages in-order [paragraphs 41-42].

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur, and further in view of Kagan et al., (US Publication No. 2002/0152315), (hereinafter Kagan).

Regarding claims 2, 10 and 17, Elzur discloses a connection context on a per TCP hole basis [Elzur, paragraph 42].

Elzur does not specifically disclose storing a number of pending RDMA Read Response messages waiting for a doorbell ring; and

ringing the doorbell of a network interface controller (NIC) that each of the number of pending RDMA read response messages have been posted to a respective work queue element (WQE) of a read queue upon closing of a respective TCP hole. However, Kagan in the same field of endeavor discloses, ringing the doorbell when their are pending messages [Kagan, paragraph 10, 46-47]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate ringing the doorbell of a NIC with pending messages in order to allow delivery of the pending messages.

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In reference to claim 3, Elzur-Kagan further discloses processing each WQE [Kagan, paragraph 48].

In reference to claims 4, 11 and 18, Elzur-Kagan further discloses for each RDMA Send message of a TCP hole, placing RDMA Send message specific information to a work queue element (WQE) associated with the respective RDMA Send message [Kagan, paragraph 47].

In reference to claims 5, 12 and 19, Elzur-Kagan further discloses placing the CQE to a completion queue (CQ) upon closing of the TCP hole [Kagan, paragraph 24].

In reference to claims 6, 13 and 20, Elzur-Kagan further discloses a number of CQEs is equal to a number of RDMA Send messages of the TCP hole [Kagan, paragraph 10, 24].

In reference to claims 7, 14 and 21, Elzur-Kagan further discloses RDMA Send message specific information is retrieved from a respective WQE upon a Poll-for-Completion request by an RDMA verb interface [Kagan, paragraph 57].

In reference to claims 8, 15 and 22, Elzur-Kagan further discloses storing a number of completed RDMA Read Response messages on a per TCP hole basis [Kagan, paragraphs 48, 49 and 57]; and

reporting completion of RDMA Read work requests upon closing of the TCP hole [Kagan, paragraphs 57 and 58 ].

### ***Response to Arguments***

1. Applicant's arguments filed 04/18/2008 have been fully considered but they are not persuasive.

A – Applicant argues “Elzur does not teach placing out-of-order RDMA messages in a reassembly buffer, while placing in-order RDMA messages in a destination buffer.”.

A – Elzur discloses a temporary buffer for out-of-order messages and sending non-out-of-order messages to memory (buffer) [Elzur, paragraphs 38 and 41-42].

B – Applicant argues “Elzur does not teach or suggest the feature of ‘delivering a plurality of RDMA messages.’.”.

B – Elzur discloses TCP segments [Elzur, at least in paragraphs 41, lines 18-25 and 42, lines 1-5].

2. Applicant's arguments, filed 04/18/2008, with respect to 101 Rejection have been fully considered and are persuasive. The 101 Rejection of claims 16-22 has been withdrawn.

***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM J. GOODCHILD whose telephone number is (571)270-1589. The examiner can normally be reached on Monday - Friday / 8:00 AM - 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WJG

/Jason D Cardone/  
Supervisory Patent Examiner, Art Unit 2145